

# Knowledge Acquisition Via Multimedia Nursing Pharmacology Cases

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## INTRODUCTION

A major challenge faced by nursing and other health profession educators is to aid the student's transfer of knowledge between theory and practice. This transfer is enhanced by using case/simulation instruction. Cases improve the learner's problem solving abilities, teach information processing and support decision making. The educational process is also enhanced through the use of computer-assisted instruction (CAI). The intent of this project was to develop CAI-based, interactive, multimedia cases as supplemental educational materials for nursing students taking pharmacology.

## PROJECT METHODOLOGY

The program was created using a standard multimedia project development process. Process phases included audience analysis, concept development, story-boarding and production.

Audience analysis identified two groups that needed to be considered in the design of the project: Those who make the adoption decision and those who will use the program. The characteristics of the adopters (faculty) are far different from those of the users (students). This realization played an important part in the development of the user interface.

Prototypical users of the program were identified as follows: nursing students, 18-20 years old, female, upper lower to lower middle socioeconomic group, low tolerance for computer confusion, novice computer literacy, white Americans, fairly structured cognitive style and a high school education. Both the adopting faculty and the utilizing student groups were taken into consideration.

The second phase of the development process was to identify an overall conceptual framework. Since familiarizing the student with a health care environment was considered crucial, the concept of a "hospital corporation" was adopted. The decision to utilize this metaphor allowed the designers to provide

a realistic learning experience where students interact with both patients and hospital departments.

The Hospital Corporation was designed to include different care delivery scenarios. Students can analyze patient cases chosen from various acute care units in the main hospital, satellite clinics and home health agencies. The main hospital serves as a centralized repository for information needed for case analysis. This information can be found in the pharmacy, the laboratory and the hospital library.

Once the conceptual framework and over-riding metaphor were identified, a storyboard representation of the program was developed. The storyboard consisted of a paper description of each program screen. Drawings (including content and navigational buttons) as well as audio and video scripts and key technical issues were clarified on each page of the storyboard. These pages were then arranged into a flowchart which provided a visual representation of the entire program for the production phase.

The program was produced using Macromedia Director® 4.0. This multimedia authoring and animation program uses the metaphor of a movie production. Director was chosen as the authoring tool because of its ability to cross platforms. The Windows® and Macintosh® versions of the product are binary-compatible, so one can transfer Director movies between them by simply moving the file.

The first developed program of a proposed series, presents patient cases that require students to apply and synthesize knowledge of antibiotic therapy. Subsequent programs will deal with other drug classifications.